

ABBREVIATED PRELIMINARY ASSESSMENT

AJAX MINE



Umatilla National Forest
Grant County, Oregon

December 2002

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EXECUTIVE SUMMARY

The Forest Service performed an Abbreviated Preliminary Assessment for the Ajax Mine (Site) to determine the need for further site characterization. The Site waste pile is placed on moderate side slopes and is located in the riparian area of Lucas Gulch. A Niton XRF unit was used for In Situ field screening of the waste pile for any potential contaminants. Water and sediment samples were not collected.

Two elements exceeded EPA Region IX Preliminary Remediation Goals (PRG) as to acceptable industrial levels in soil. The elements were iron and arsenic. It is apparent material is moving into Lucas Gulch from erosion forces.

Based on the proximity of the Site to Lucas Gulch, it is recommended a Site Inspection (SI) be performed.

1.0 INTRODUCTION

An Abbreviated Preliminary Assessment (APA) was performed by the US Forest Service in accordance with the EPA “Guidance for Performing Preliminary Assessments Under CERCLA”, EPA “Improving Site Assessment: Abbreviated Preliminary Assessments” of 1999, the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, the Superfund Amendments and Reauthorization Act (SARA) of 1986, and the National Contingency Plan as outlined in 40 CFR Parts 300.410(c)(1)(i-v).

The purpose of this assessment was to determine whether or not there is a potential for a release of contaminants to the environment and/or to human health. The purpose of an APA is to determine whether further site characterization is warranted. A Niton XRF 700 Series was utilized to help in the preliminary screening of this Site.

2.0 SITE DESCRIPTION, OPERATIONAL HISTORY, AND WASTE CHARACTERISTICS

The Ajax Mine (Site) is located approximately 3.0 miles north of Granite, OR, on County Road 73. The legal description for the Site is; Latitude: 44° 51' 25"N, Longitude: 118° 24' 16"W, Sec 22, T 8 S, R 35.5 E, USGS Quadrangle Map - Granite. The Site is situated on moderate to steep hillsides adjacent to Lucas Gulch. The Site is located in the mining district of Granite.

The Site consists of one adit with water discharge coming from the adit, crossing an old Forest Service road and draining into a settling pond on top of waste rock material. Seeps were observed at the toe of the waste rock and evidence suggesting that these seeps increase in flow during spring snowmelt as there was staining of the soil going into the small stream in Lucas Gulch. The Site consists of a waste pile with a settling pond built on top of the waste pile. The waste pile is situated on top of relatively flat to moderate side slopes and in the riparian zone of Lucas Gulch. There are no structures, other than the adit, in the area. Accessing the site is easily accomplished via way of the old Forest Service road. Approximately one acre is disturbed on the Site.

There is limited historical data available on this mine. It appears this mine was developed in the early 1900s, and consisted of five short adits of which the longest one had 500 feet of drift on the Ajax vein. At one time, a five-stamp mill was on the property. A shoot 90 feet long in the Ajax vein produced \$40,000 in gold and silver during 1905-1906.

In 1996, EPA reported elevated arsenic (700 ppm) and mercury (1.6 ppm) in sediments in Lucas Gulch. The arsenic and mercury concentrations in the adit discharge were reportedly lower than what was in Lucas Gulch suggesting the bulk of the contamination might be from the Magnolia mine, which is further upstream. Lucas Gulch drains into Granite Creek, which is considered critical habitat for Chinook salmon.

3.0 SITE SAMPLING AND TEST RESULTS

A Niton XRF, XL-722S was used to assess the waste piles for potential contamination. In Situ testing was performed on the Site per EPA Method 6200. Surface soils were removed to approximately 4 to 6 inches below grade in order to get below highly oxidized surface layers. Rocks, debris and other deleterious materials were removed. The soil was worked to gain a flat surface area on which to set the Niton.

No surface water, sediment, or adit discharge samples were collected and analyzed.

The following constituents exceeded EPA Region IX PRG industrial levels:

<u>Location</u>	<u>Constituent</u>	<u>Result (mg/kg)</u>	<u>PRG (mg/kg)</u>
Toe of Waste in Riparian Zone	Iron	385,840	100,000
	Arsenic	420	2.7*
Top of waste Pile	Arsenic	355	2.7
Background Readings	Iron	31,390	100,000
	Arsenic	42	2.7**

*Arsenic Industrial PRG is 2.7 mg/kg for cancer end point and 440 mg/kg for noncancer endpoints.

** Even though background concentrations are higher than for cancer endpoints, an actual removal effort would only be done to background levels. Additional sampling is required to determine the exact background level.

It is apparent that material from the waste pile is entering Lucas Gulch. It is not clear whether subsurface seepage from the waste pile is occurring and thus creating a contaminated groundwater plume, which would also enter Lucas Gulch. The ramification from this material entering an aquatic environment is unknown at this time.

4.0 SUMMARY

The waste pile lies in the riparian zone of Lucas Gulch. It was apparent erosion forces are contributing some material to Lucas Gulch.

The constituents of concern that exceeded EPA Region IX industrial levels in soil were iron and arsenic. At this time, it is unclear as to any impacts to the aquatic environment from these constituents.

5.0 RECOMMENDATION

Based on the In Situ screening of the waste pile with the Niton XRF unit, the proximity of the waste pile to Lucas Gulch, and EPA's APA Checklist (Appendix A), it is recommended that a Site Inspection (SI) be completed. As part of this inspection, water samples from pore spaces of the stream gravels should be collected as well as sampling of the benthic macroinvertebrate organisms. In addition to testing water samples from the pore spaces of the gravels for the presence of metallic elements, water parameters such as pH, conductivity, turbidity, dissolved oxygen, temperature, total dissolved solids, hardness, and oxygen reduction potential are required. The waste pile should be sampled at depth and a determination of the volume should be calculated. The water from the adit should be sampled and tested for the field parameters as outlined above as well as for elemental contaminants. Acid base accounting (ABA) is required. Sediment samples are to be collected from transects of the stream and preferably at depth and analyzed for total as well as for available metals. Surface water samples are also required for analysis for both total and available metals.

Appendix A

ABBREVIATED PRELIMINARY ASSESSMENT CHECKLIST

ABBREVIATED PRELIMINARY ASSESSMENT CHECKLIST

This checklist can be used to help the site investigator determine if an Abbreviated Preliminary Assessment (APA) is warranted. This checklist should document the rationale for the decision on whether further steps in the site assessment process are required under CERCLA. Use additional sheets, if necessary.

Checklist Preparer: Dennis Boles, Environmental Engineer July 9, 2002
(Name/Title) (Date)

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(Address) (Phone)

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(E-Mail Address)

Site Name: Ajax Mine

Previous Names (if any): None

Site Location: The Site is located approximately 3.0 miles north of Granite, OR on County Road 73. The site is located on the riparian area of Lucas Gulch.

Legal Description: Latitude: 44°51'25"N Longitude: 118°24'16"W

Describe the release (or potential release) and its probable nature: The waste pile is situated in the riparian zone of Lucas Gulch with obvious signs of migration of contaminants. The following elements exceed industrial levels of the PRGs and the results and relevant PRG industrial levels are listed in parentheses:

Iron – 385,840 (100,000 mg/kg), Arsenic – 420 (2.7 mg/kg cancer and 440 mg/kg noncancer endpoints)

Part 1 - Superfund Eligibility Evaluation

If All answers are "no" go on to Part 2, otherwise proceed to Part 3	YES	NO
1. Is the site currently in CERCLIS or an "alias" of another site?		X
2. Is the site being addressed by some other remedial program (Federal, State, or Tribal)?		X
3. Are the hazardous substances potentially released at the site regulated under a statutory exclusion (i.e., petroleum, natural gas, natural gas liquids, synthetic gas usable for fuel, normal application of fertilizer, release located in a workplace, naturally occurring, or regulated by the NRC, UMTRCA, or OSHA)?		X
4. Are the hazardous substances potentially released at the site excluded by policy considerations (i.e., deferred to RCRA corrective action)?		X
5. Is there sufficient documentation to demonstrate that no potential for a release that could cause adverse environmental or human health impacts exist (i.e., comprehensive remedial investigation equivalent data showing no release above ARAR's, completed removal action, documentation showing that no hazardous substance release have occurred, or an EPA approved risk assessment completed)?		X

Please explain all "yes" answer(s), _____

Part 2 - Initial Site Evaluation

For Part 2, if information is not available to make a “yes” or “no” response, further investigation may be needed. In these cases, determine whether an APA is appropriate. Exhibit 1 parallels the questions in Part 2. Use Exhibit 1 to make decisions in Part 3.

If the answer is “no” to any questions 1, 2, or 3, proceed directly to Part 3.	YES	NO
1. Does the site have a release or a potential to release?	X	
2. Does the site have uncontained sources containing CERCLA eligible substances?	X	
3. Does the site have documented on-site, adjacent, or nearby targets?	X	

If the answers to questions 1, 2, and 3 above were all “yes” then answer the questions below before proceeding to Part 3.	YES	NO
4. Does documentation indicate that a target (i.e., drinking water wells, drinking surface water intakes, etc.) has been exposed to a hazardous substance released from the site?		X
5. Is there an apparent release at the site with no documentation of exposed targets, but there are targets on site or immediately adjacent to the site?	X	
6. Is there an apparent release and no documented on-site targets or targets immediately adjacent to the site, but there are nearby targets (i.e., targets within 1 mile)?	X	
7. Is there no indication of a hazardous substance release, and there are uncontained sources containing CERCLA hazardous substances, but there is a potential to release with targets present on site or in proximity to the site?	X	

Notes:

EXHIBIT 1

SITE ASSESSMENT DECISION GUIDELINES FOR A SITE

Exhibit 1 identifies different types of site information and provides some possible recommendations for further site assessment activities based on that information. You will use Exhibit 1 in determining the need for further action at the site, based on the answers to the questions in Part 2. Please use your professional judgment when evaluating a site. Your judgment may be different from the general recommendations for a site given below.

Suspected/Documented Site Conditions		APA	FULL PA	PA/SI	SI
1. There are no releases or potential to release.		Yes	No	No	No
2. No uncontained sources with CERCLA-eligible substances are present on site.		Yes	No	No	No
3. There are no on-site, adjacent, or nearby targets		Yes	No	No	No
4. There is documentation indicating that a target (i.e., drinking water wells, drinking surface water intakes, etc.) has been exposed to a hazardous substance released from the site.	Option 1: APA SI	Yes	No	No	Yes
	Option 2: PA/SI	No	No	Yes	No
5. There is an apparent release at the site with no documentation of exposed targets, but there are targets on site or immediately adjacent to the site.	Option 1: APA SI	Yes	No	No	Yes
	Option 2: PA/SI	No	No	Yes	N/A
6. There is an apparent release and no documented on-site targets and no documented immediately adjacent to the site, but there are nearby targets. Nearby targets are those targets that are located within 1 mile of the site and have a relatively high likelihood of exposure to a hazardous substance migrating from the site.		No	Yes	No	No
7. There is no indication of a hazardous substance release, and there are uncontained sources containing CERCLA hazardous substances, but there is a potential to release with targets present on site or in proximity to the site.		No	Yes	No	No

Part 3 - EPA Site Assessment Decision

When completing Part 3, use Part 2 and Exhibit 1 to select the appropriate decision. For example, if the answer to question 1 in Part 2 was “no,” then an APA may be performed and the “NFRAP” box below should be checked. Additionally, if the answer to question 4 in Part 2 is “yes,” then you have two options (as indicated in Exhibit 1): Option 1 -- conduct an APA and check the “Lower Priority SI” or “Higher Priority SI” box below; or Option 2 -- proceed with a combined PA/SI assessment.

Check the box that applies based on the conclusions of the APA:

- | | |
|--|--|
| <input type="checkbox"/> NFRAP | <input type="checkbox"/> Refer to Removal Program – further site assessment needed |
| <input checked="" type="checkbox"/> Higher Priority SI | <input type="checkbox"/> Refer to Removal Program – NFRAP |
| <input type="checkbox"/> Lower Priority SI | <input type="checkbox"/> Site is being addressed as part of another CERCLIS site |
| <input type="checkbox"/> Defer to RCRA Subtitle C | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Defer to NRC | |

Regional EPA Reviewer: N/A

Print Name/Signature

Date

PLEASE EXPLAIN THE RATIONALE FOR YOUR DECISION:

The waste pile at the Ajax Mine is on the riparian zone of Lucas Gulch. It is obvious that material is transported to Lucas Gulch during rain and snowmelt situations. Considering Lucas Gulch is a tributary to Granite Creek, which is prime habitat for Chinook salmon and EPA reports showing elevated arsenic and mercury in sediments from Lucas Gulch, an SI is warranted for this Site. Also, water samples from the pore spaces of the gravels and sediments of Lucas Gulch should be collected both up and down stream from the Site and analyzed to determine impacts to benthic macroinvertebrate organisms. Iron and arsenic exceed the EPA Region IX PRGs for industrial levels.

NOTES:

The Site is situated on moderate to steep side slopes and getting drilling equipment on the waste pile can easily be accomplished. Based on this, drilling is appropriate in order to collect soil samples for laboratory evaluation and to determine the volume of material onsite as well as any impact to groundwater in the area.

There is water coming from the mine and being collected in the retention pond just below the mine portal as shown in the photos in Appendix B. This pond is situated on top of waste rock material. The photo on the cover shows iron staining of soil below the waste rock material and this material is adjacent to Lucas Gulch, which is seen as a ditch in the upper right hand portion of the photo.

Appendix B

ADDITIONAL SITE PHOTOS



Portal



*Retention Pond
Below the Portal*